

# Cassette tape recorder FM/SW/MW/LW radio **TRK-8110E** Operating guide

## KEY TO ILLUSTRATIONS

- |                               |                                 |
|-------------------------------|---------------------------------|
| ① BASS CONTROL                | ②① MIXING VOLUME CONTROL        |
| ② TREBLE CONTROL              | ②② MIXING SOCKET                |
| ③ VOLUME CONTROL (L. R)       | ②③ HEADPHONE SOCKET             |
| ④ MODE SWITCH                 | ②④ SLEEP OFF/SNOOZE BUTTON      |
| ⑤ TELESCOPIC ANTENNA (AERIAL) | ②⑤ SLEEP ON BUTTON              |
| ⑥ PAUSE BUTTON                | ②⑥ TIMER BUTTON                 |
| ⑦ FAST FORWARD/CUE BUTTON     | ②⑦ TIME SET BUTTON              |
| ⑧ REWIND/REVIEW BUTTON        | ②⑧ MINUTE SET BUTTON            |
| ⑨ PLAYBACK BUTTON             | ②⑨ HOUR SET BUTTON              |
| ⑩ RECORD BUTTON               | ③① TIME DISPLAY                 |
| ⑪ STOP/EJECT BUTTON           | ③② BUILT-IN MICROPHONE (LEFT)   |
| ⑫ TAPE SELECTOR SWITCH        | ③③ EXTERNAL FM ANTENNA TERMINAL |
| ⑬ POWER SWITCH                | ③④ RECORD/PLAYBACK SOCKET (DIN) |
| ⑭ FUNCTION SELECTOR           | ③⑤ RIF/AFC SWITCH               |
| ⑮ BAND SELECTOR               | ③⑥ EXTERNAL SPEAKER SOCKETS     |
| ⑯ FM STEREO INDICATOR         | ③⑦ DC 12V SOCKET                |
| ⑰ BUILT-IN MICROPHONE (RIGHT) | ③⑧ AC SOCKET                    |
| ⑱ TUNING CONTROL              | ③⑨ BATTERY REPLACEMENT          |
| ⑲ LED LEVEL INDICATOR         | ③⑩ CASSETTE PROTECTION          |
| ⑳ TAPE COUNTER                | ④① CLEANING                     |

Note: The indication of the Power switch ⑬ is that "I" shows ON and "⏻" shows OFF.

## BEFORE USING

To obtain the best performance and ensure years of trouble-free use, please read this operating guide carefully.

## PRECAUTIONS

- \* When the unit is not in use or used on AC power for a long period of time, the batteries should be taken out of the battery compartment.
- \* Do not leave the exhausted batteries in the battery compartment, or they may corrode and cause damage.
- \* Do not leave the unit in direct sunlight or extremely hot or humid places.
- \* Never use any detergents or solvents for cleaning the cabinet of this unit, because this could damage the surface finish.

## FEATURES

- \* **High sensitivity 4-band radio**  
The high sensitivity tuner and PLL Multiplex Circuit make receiving stereo broadcasts with good separation easy. In addition, large speakers with a high output power of 12W (Max.) let you enjoy powerful, dynamic stereo sound.
- \* **Liquid crystal/quartz digital clock**  
The radio can be turned on at any required time using the digital clock. You can even fall asleep while listening to a radio broadcast.
- \* **Tape selector switch**  
This switch is used to provide the correct bias to suit the characteristics of normal or Chromium Dioxide (CrO<sub>2</sub>) tape.
- \* **Mixing**  
Mixing is the combining of two different sounds; you can enjoy mic mixing or mixed recording.

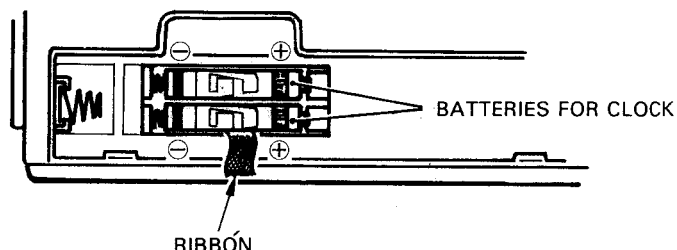
## POWER REQUIREMENTS

**Operation using Batteries:** Remove the battery compartment lid and install 8 batteries as shown in the diagram in the compartment. (See diagram ③⑧).

**Note:** When the unit is not in use or used on AC power (mains) for a long period of time, the batteries should be taken out of the battery compartment.

**Batteries for digital clock:** Remove the battery case lid and insert 2 IEC R6 batteries with the ribbon under neath for the clock (be careful not to mistake polarity).

The batteries can easily be removed by pulling the ribbon.



Do not remove the clock batteries frequently; they can be used continuously for more than one year.

When the time display becomes dim and hard-to-see, replace the batteries. When they are removed from any other purpose, the set time is released. In this case, reset the time.

The clock in this set uses 2 IEC R6 batteries.  
It does not operate with AC or car battery power.

**Operation using car battery:** To operate using a car battery, insert one end of the optional car adaptor into the DC 12 V socket ③⑥ and other end into the cigarette lighter of your car. This will automatically disconnect the batteries.

**Operation using AC power (mains):** Insert one end of the AC power (mains) lead into the AC socket ③⑦ and the other end into a convenient AC outlet. This will automatically disconnect the batteries. To return to battery operation, disconnect the AC power (mains) lead from the AC socket ③⑦.

**Note:** Disconnect the AC power (mains) lead plug from the AC outlet when the unit is not to be used with AC power (mains) for a long period of time or you are away from home.

## RADIO OPERATION

Before listening to a radio programme, set the power switch ⑬ to "I" and confirm that the operation indicator lights.

1. Set the function selector ⑭ to the "RADIO" position.
2. Set the Band selector ⑮ to the desired position.
3. Turn the Tuning control ⑯ to select the desired station.
4. Adjust the antenna (aerial).

**FM reception:** Extend the Telescopic antenna (aerial) ⑤ to its full length.

Change antenna (aerial) direction to obtain the best reception.

After tuning in an FM station set the AFC switch ⑳ to the "ON" position.

AFC (Automatic Frequency Control) circuit prevents drifting from a properly tuned-in FM station. For reception of a weak signal station located near a strong signal station, set the AFC switch ㉑ to the "OFF" position.

**FM stereo indicator:** If the Mode switch ㉒ is set to "STEREO", FM stereo indicator ㉓ lights when the station is broadcasting a stereo programme. FM stereo indicator ㉓ does not light even if the station is broadcasting a stereo programme when Mode switch ㉒ is set to "MONO". If the stereo indicator light should go off later the station is no longer transmitting a stereo programme, therefore change the Mode switch ㉒ to the "MONO" position.

When an FM stereo signal is too weak or noisy for enjoyable stereo listening, set the Mode switch ㉒ to the "MONO" position.

- \* In the area comparatively near the broadcasting station, the telescopic antenna is sufficient. In an area where the signals are weak, however, connect an FM feeder antenna (optional), to the FM external antenna terminal and spread it on the ceiling or wall, aligning the horizontal section of the antenna for optimum reception.
- \* In areas with a very weak signal, install an exclusive FM antenna and connect it to the FM external antenna terminal.

**SW reception:** Extend the Telescopic antenna (aerial) ⑤ to its full length.

**MW and LW reception:** The built-in ferrite-core antenna (aerial) guarantees good reception under normal conditions. Rotate the unit and find the position in which the best reception is obtained.

5. Adjust the Volume, Treble and Bass controls ㉔, ㉕ and ㉖.
6. To turn off the radio, set the Power switch ⑬ to the "⏻" position.

### LED level indicator

The LED level indicator lights according to the signal level even when the volume control is set to minimum.

The LED on the left is the operation indicator which lights to show that the unit is operating.

## TAPE RECORDER OPERATION

Before operating the tape recorder unit, set the power switch ⑬ to "I" and confirm that the operation indicator lights.

**INSERTION OF CASSETTE:** Depress the eject button ⑪ to open the cassette lid and insert the cassette with its full reel on the right and the opening up.

When the cassette is fully recorded or played back, it may be turned over to side 2 (or B) for an equal time of recording or playback.

### SELECTION OF TAPE TYPE:

When using chromium dioxide (CrO<sub>2</sub>) tape, Tape selector ⑫ should be set to the CrO<sub>2</sub> position for optimum performance. In order to avoid faulty recording this selector should be checked before each recording is made.

### TAPE PLAYBACK

to playback a cassette tape, set the Function selector ⑭ to the "TAPE" position and depress the Playback button ⑨.

### FAST FORWARD AND REWIND

**Fast forward/Cue:** Depress the Fast forward button ⑦ with the playback button ⑨ kept depressed, so that the tape is fed forward quickly. Release the Fast forward button ⑦ so that the playback starts again. For ordinary fast forwarding, depress the Fast forward button ⑦ after depressing the Stop button ⑪.

**Rewind/review:** When you desiring to listen to a certain part again during playback, depress the Rewind button ⑧ with the Playback button ⑨ kept depressed, so that the tape is rewound quickly. For ordinary rewind, depress the Rewind button ⑧ after depressing the Stop button ⑪.

**Quick review:** During recording, depress the Rewind button ⑧; only the Record button ⑩ is released and review operation starts with the Playback button ⑨ locked.

When the Rewind button ⑧ is released, playback starts immediately.

### RECORDING

**LEVELMATIC AND VARIABLE MONITOR:** During recording, no level adjustment is necessary. The unique "Levelmatic" device in Hitachi tape recorders will permit distortion-free recording even when an excessively loud sound is received.

The radio programmes may be heard with any desired volume control setting without affecting the recording because of the "Variable monitor" device.

### RECORDING FROM RADIO PROGRAMMES

Set the Function selector ⑭ to the "RADIO" position and depress the Record and Playback buttons ⑩ and ⑨.

(The sound can be monitored through the speakers.)

Note: If beat noise is audible during recording of an LW or MW radio programme, set the RIF switch ⑮ to the position in which no such sound is heard.

## **RECORDING FROM BUILT-IN (OR EXTERNAL) MICROPHONE**

When recording from the built-in microphones, set the Function selector ⑭ to the "TAPE" position and depress the Record and Playback buttons ⑩ and ⑨.

(The sound cannot be monitored through the speakers.)

When recording from an external microphone, set the Function selector ⑭ to the "LINE IN" position and connect the microphone plug to the Mixing socket ②② and adjust the Mixing volume control ②①.

(The sound can be monitored through the speakers)

## **RECORDING FROM EXTERNAL PROGRAMME SOURCES**

All programme sources may be directly recorded on cassette tape. External programme sources have to be connected to the Record/playback (DIN) socket ③③ and Function selector ⑭ set to the "LINE IN" position.

Note: A DIN cord can be used only with an amplifier.

Accordingly, recording and playback are not possible by connecting two cassette recorders.

## **TO STOP THE TAPE**

Because an Auto Stop Mechanism is employed, tape stops automatically at the end of tape during recording or playback. To stop the tape at any other time, depress the Stop button ⑪.

By use of the Pause button ⑥, the operation of the recorder can be stopped temporarily during recording or playing back without changing the mode. Depress the pause button ⑥ again to restart recording or playing back.

## **ERASING**

When a recording is being made, any sound already on the tracks is automatically erased before the new recording is made.

Erasure is accomplished only when the recorder is in the recording mode. If you wish to erase a tape without making a new recording, set the Function selector ⑭ to the "LINE IN" position then depress the Record and Playback buttons ⑩ and ⑨ after disconnecting the external microphone and/or external programme sources.

### **Note:**

The Record button ⑩ cannot be depressed if there is no cassette or if a cassette without tabs is inserted into the unit.

Always depress the Record and Playback buttons ⑩ and ⑨ simultaneously or in the sequence the Record button ⑩ then the Playback button ⑨; never depress these buttons in the reverse order, because this will damage the unit.

**Mixed playback:** 2 different sounds such as the sound of tape playback, radio broadcasts or external microphone can be played back simultaneously.

**External microphone and Built-in radio:**

1. Set the Function selector ⑭ to the "RADIO" position.
2. Insert the microphone plug into the Mixing socket ②②.
3. Set the Band selector ⑮ to the desired position.
4. Turn the Tuning control ⑱ to select the desired station.
5. Adjust the Volume, Treble and Bass controls ③, ② and ①.
6. Adjust microphone output level with the Mixing Volume control ②①.

**External microphone and Tape playback:**

1. Set the Function selector ⑭ to the "TAPE" position.
2. Insert the microphone plug into the Mixing socket ②②.
3. Depress the playback button ⑨.
4. Adjust the Volume, Treble and Bass controls ③, ② and ①.
5. Adjust microphone output level with the Mixing volume control ②①.

**External microphone and External programme source**

1. Set the Function selector ⑭ to the LINE IN position.
2. Insert the microphone plug into the Mixing socket ②②.
3. The external programme source must be connected to Record/-playback (DIN) socket ③③.

**Mixed recording:** 2 different sounds can be recorded simultaneously; record your voice singing along with music from the radio, etc.

**Built-in radio and External microphone:**

1. Set the Function selector ⑭ to the "RADIO" position.
2. Insert the microphone plug into the Mixing socket ②②.
3. Set the Band selector ⑮ to the desired position.
4. Turn the Tuning control ⑱ to select the desired station.
5. Depress the Record and Playback buttons ⑩ and ⑨.

**External microphone and External sound source:**

1. Set the Function selector ⑭ to the "LINE IN" position.
2. Insert the microphone plug into the Mixing socket ②②.
3. The external programme sources must be connected to the Record/playback (DIN) socket ③③.
4. Depress the record and Playback buttons ⑩ and ⑨.

When the operation of the tape recorder is complete, set the power switch ⑬ to "⏻" and check that the operation indicator goes off.

## HOW TO USE THE DIGITAL CLOCK

### SETTING THE PRESENT TIME

1. HOUR: Press the HOUR set button ⑲ while pressing the TIME set button ⑳. The numerals change while the button is depressed; release it when the "HOUR" you want to set to is indicated. (The display changes from "0" to "23")
2. MINUTE: Press the MINUTE set button ㉑ while pressing the TIME set button ⑳. The numerals change while the button is depressed; release it when the "MINUTE" you want to set to is indicated. (The display changes from "00" to "59")

### SETTING THE AUTO-ON TIME

Set the Power switch ⑬ to "⏻" or "I". Press the HOUR set button ⑲ and MINUTE set button ㉑ while pressing the TIMER button ㉒ to set the AUTO-ON time.

Release the button after the AUTO-ON time is set, and the TIME display ㉓ indicates the present time. Press the TIMER button ㉒ when you desire to check the AUTO-ON time.

Note: Be sure to set the Power switch ⑬ to the "⏻" or "I" position when setting the AUTO-ON time.

### FOR SLEEP OPERATION

#### To fall asleep while listening to radio:

1. Set the radio to the reception mode. (Refer to "Radio operation")
2. Press the SLEEP ON button ㉔.  
With the SLEEP ON button depressed, "69" is displayed on the TIME display, and you can listen to radio for 69 minutes.  
When you desire to listen to radio for only 30 minutes, press the MINUTE button ㉑ while pressing the SLEEP ON button ㉔ to set the TIME display to "30".
3. Set the Power switch ⑬ to "AUTO".  
Note: To release the SLEEP function, press the SLEEP OFF button ㉕.  
The SLEEP function does not operate if the SLEEP ON button ㉔ is pressed with the power switch ⑬ set to "I".

#### To fall asleep while listening to a tape:

1. Set the Power switch ⑬ to "I" to set this unit to the PLAY mode.
2. Press the SLEEP ON button ㉔.  
When the tape is wound to the end, the AUTO stop mechanism operates to set the unit to the STOP mode.  
Note: The tape operation time is the time taken for the cassette tape to be fully wound to the end. The power supply is automatically turned off after 69 minutes.



## TO USE AS AN ALARM:

### To wake up with radio:

1. Set the radio to the reception mode. (Refer to "Radio operation")
2. Set the power switch ⑬ to "⏻" or "I" to set the time you want to wake up. (Refer to "setting the AUTO-ON time")
3. Set the Power switch ⑬ to "AUTO".

Now, setting is complete. You will be woken by the radio.

### When you want to sleep a little longer:

When you want to doze for a few minutes after the radio has woken you, press the SNOOZE button ⑭: the radio will start again 7 minutes later.

Note: Set the Power switch ⑬ to "⏻" to release the set alarm time.

## TO FALL ASLEEP WITH "SLEEP" AND WAKE UP WITH "ALARM"

By using the SLEEP mechanism and the TIMER mechanism together, you can fall asleep while listening to the radio and be woken up by it at the desired time next morning. Refer to the "To fall asleep while listening to radio" and the "To wake up with radio" for operations.

Note: Once the ALARM time is set, it operates every 24 hours with the Power switch ⑬ set to "AUTO"; SLEEP only operates once, so it should be set again every time you go to bed.

## FOR UNATTENDED RECORDING

If the time is set, the power is turned on at the specified time and recording starts automatically.

This convenient unattended recording system releases the operation buttons automatically when the tape ends.

1. Set the radio to the reception mode and insert a cassette tape.
2. Set the Power switch ⑬ to "⏻" or "I", and set to the required start time. (Refer to "Setting the AUTO-ON time")
3. Set the Power switch ⑬ to "AUTO".
4. Depress the RECORD and PLAYBACK buttons ⑩, ⑨

Now, preparation is complete. When the set time is reached, the power is turned on and recording starts automatically. When the recording is done to the end of tape, the AUTO-STOP mechanism operates to release the record and playback buttons. The radio turns off 69 minutes after recording starts.

## PRECAUTIONS WITH CASSETTE TAPE

### TYPE OF CASSETTE TAPE

Use a normal tape, as detailed in the following table, which provides the recording time you desire.

TYPE		C-30	C-60	C-90
Recording time	One side	15 min.	30 min.	45 min.
	Both sides	30 min.	60 min.	90 min.

We recommend you not to use C-120 cassette tape. C-120 cassette is thinner, consequently a greater danger exists of faults arising from loose or curled tape and variations in tension.

If a tape is played several times continuously, especially if thin tape (C-90 or C-120) is used, the tape might be wound too tightly on the reel which may cause the tape speed to fluctuate. In order to avoid this, it is recommended to tap the cassette several times lightly against the table-top which will loosen the tape on the reel. However, the tape should not be too loose. Especially after fast forwarding or rewinding a C-90 or C-120 cassette, the slack should be taken up by inserting a pencil or ball-point pen in the spindle hole and tightening the tape to prevent looping.

### PROTECTION AGAINST ACCIDENTAL ERASURE

If the tabs on the rear of the cassette are punched out (by use a screwdriver or similar tool) the recordings can be protected against accidental erasure.

If side "A" of the cassette is to be protected, punch out tab "A". When both sides are to be protected, punch out both tabs. (See diagram ③⁹ )

## MAINTENANCE

In order to keep this unit in its optimum operating condition, clean the heads, capstan and pressure roller periodically with a cleaning stick moistened with alcohol or methylated spirits. These are easily accessible if the cassette lid is removed (depress the Eject button ⑪ ) with the Playback button ⑨ depressed. (See diagram ④⁰ ). Never use sharp or metallic instruments or tools for cleaning these parts.

The easiest way cleaning can be performed is by using a Hitachi head cleaning cassette tape.

Hitachi Ultra-Dynamic Cassettes are provided with a piece of head cleaning tape on both ends of the tape; therefore, all accumulated dirt and oxide particles are removed automatically at the beginning and end of the tape.

## CHECK THE FOLLOWING BEFORE CALLING FOR SERVICE

### ***Before you jump to the conclusion that it's out of order!***

When the unit is not operating properly, one is apt to assume that the unit is faulty. However, there are many possible faults which are not directly attributable to the unit itself. It is recommended to check the following before taking the unit to a Hitachi dealer.

Symptom	Cause
No power	<ul style="list-style-type: none"> <li>• Is the power lead properly connected ?</li> </ul>
No battery operation. No sound from the radio. Tape does not run when a button is depressed.	<ul style="list-style-type: none"> <li>• Is power lead connected to the unit ? If so, disconnect.</li> <li>• Are the batteries properly inserted in the battery compartment ?</li> <li>• Are the batteries exhausted ?</li> </ul>
No car battery operation	<ul style="list-style-type: none"> <li>• Is the power lead connected to the unit ? If so, disconnect.</li> </ul>
RECORD button cannot be depressed.	<ul style="list-style-type: none"> <li>• Is a cassette inserted in the unit ?</li> <li>• Are the cassette tabs for accidental erasure prevention punched out ? If so, cover the holes with plastic tape.</li> </ul>
RECORD button cannot be depressed and rattling noise is heard.	<ul style="list-style-type: none"> <li>• Is a cassette fully wound on left reel ? If so, after depressing the REWIND Button try again.</li> </ul>
Cassette cannot be inserted.	<ul style="list-style-type: none"> <li>• Is a button depressed ? If so, unlock and release.</li> <li>• Is the direction of the cassette reversed ?</li> </ul>
No playback	<ul style="list-style-type: none"> <li>• Is the PAUSE button depressed ? If so, unlock and release.</li> </ul>
No recording	<ul style="list-style-type: none"> <li>• Is the PAUSE button depressed ? If so, unlock and release.</li> <li>• Are the cassette tabs for accidental erasure prevention punched out ?</li> </ul>
Deteriorated sound or irregular tape speed. Slow tape speed or low volume.	<ul style="list-style-type: none"> <li>• Clean heads, capstan and pressure roller with a cleaning stick.</li> <li>• Are the batteries exhausted ?</li> </ul>

# SPECIFICATIONS

## GENERAL SPECIFICATIONS

Semiconductors:

ICs: 8

Transistors: 11

Diodes: 11

LEDs: 6

Power Supply:

AC: 220V, 50 Hz

DC: 12V (IEC R20 x 8 or equivalent)

Car: use car battery adaptor

Power Consumption:

18W

Speaker:

12 cm 3.2 ohms x 2, 5 cm 8 ohms x 2

Output:

12 W (6W + 6W) --- Max.

8 W (4W + 4W) --- 10% THD

Dimensions:

25.2(H) x 45.5(W) x 14.8(D) cm

Weight:

5.2 kg (with batteries)

## RADIO SECTION:

Circuit System:

FM/SW/MW/LW 4-band superheterodyne

Tuning Range:

FM: 87.5 to 108 MHz

SW: 6 to 18 MHz

MW: 530 to 1605 kHz

LW: 150 to 350 kHz

Antennas (Aerials)

FM: Telescopic antenna (aerial)

or External antenna (aerial)

MW/LW: Built-in ferrite-core antenna (aerial)

SW: Telescopic antenna (aerial)

## TAPE RECORDER SECTION

Tape:

Cassette tape (C-30, 60, 90)

Tape Speed:

4.75 cm/s

Recording System and Bias

Frequency:

AC Bias, 29 kHz

Erasing system:

Quasi-AC erase

Playback Frequency Response:

Normal: 50 to 10.000 Hz

CrO<sub>2</sub>: 50 to 12.000 Hz

Input Sensitivity and Impedance:

Microphone: 5mV, 10 kohms

Record/playback: 60mV, 50 kohms

Record/playback: 500mV, 5 kohms

Headphone: 56 ohms

Output level and Impedance:

External speaker: 3.2 ohms

DC micromotor

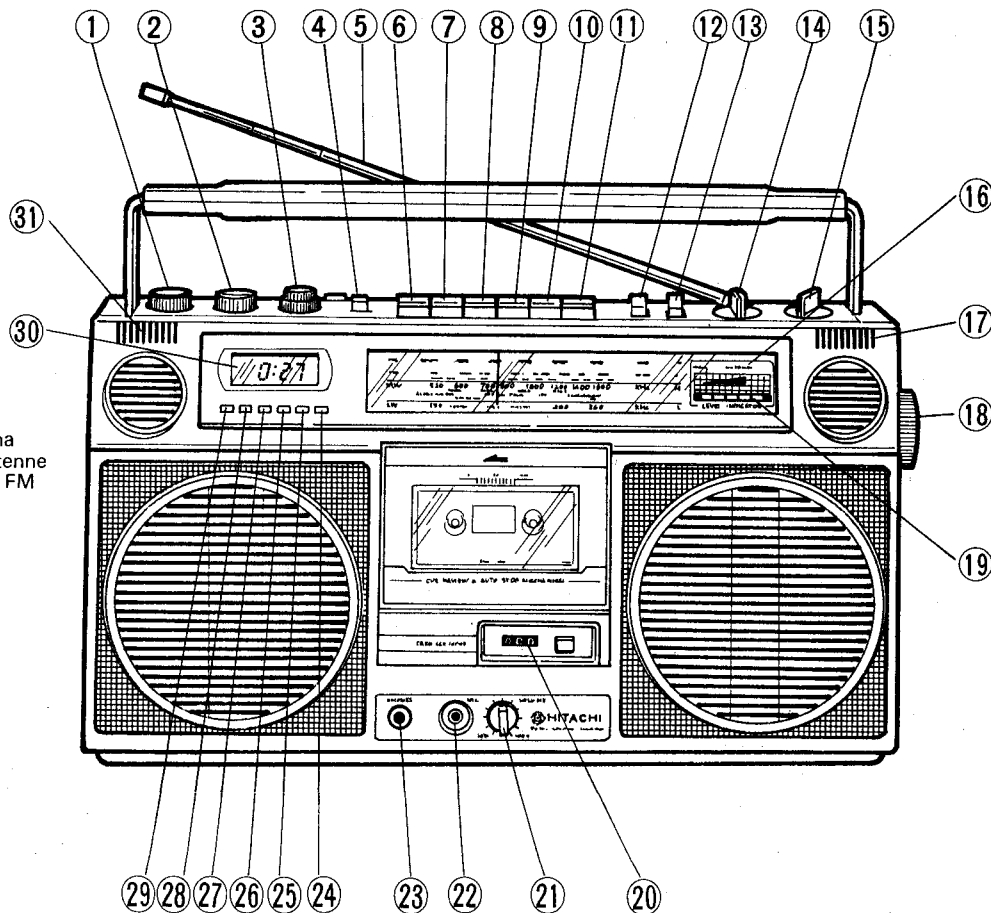
Motor:

Fast Forwarding or

Rewinding Time:

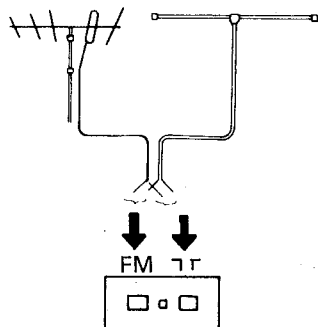
120 seconds (using C-60 cassette)

Specifications are subject to change without notice for performance improvement.

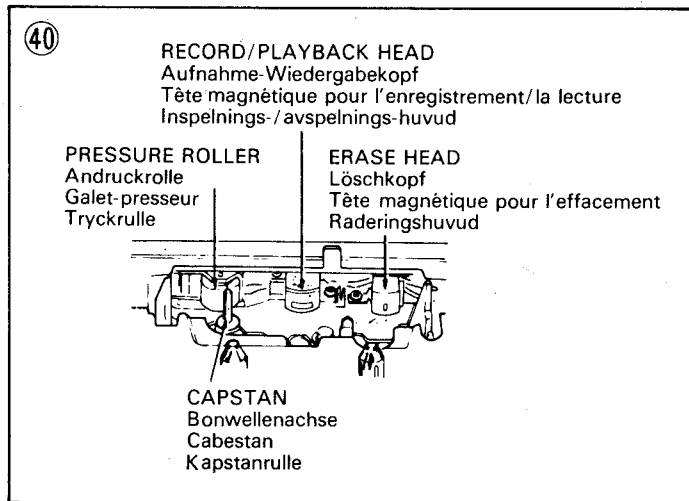
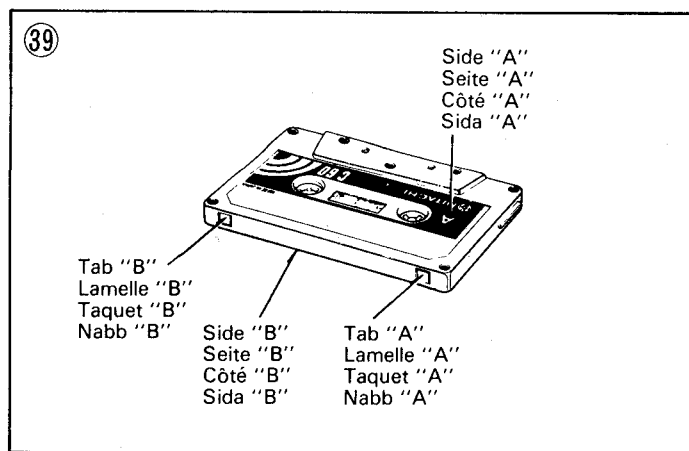
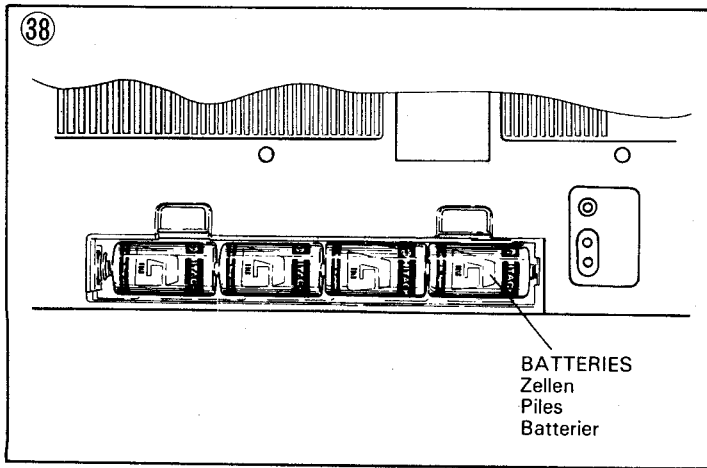
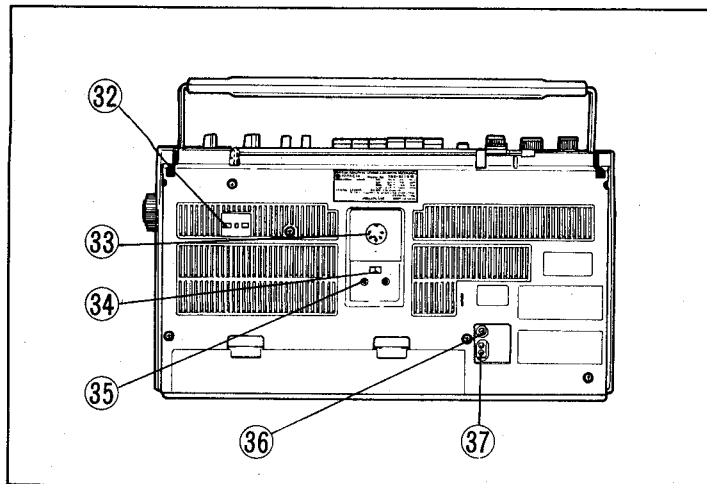


External FM antenna  
UKW-Externeantenne  
Antenne FM extérieure  
FM-externantenn

FM feeder antenna  
UKW-Leitungsantenne  
Feeder d'antenne FM  
FM-matarantenn



External FM antenna socket  
UKW-antennenbuchse  
Prise d'antenne FM  
Uttag för FM antenn



## West Germany

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## Switzerland

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